



California Regional Water Quality Control Board Lahontan Region



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Arnold Schwarzenegger
Governor

INTERNAL MEMORANDUM

TO: James D. Boyd, Commissioner
California Energy Commission

FROM: Greg Cash
LAHONTAN REGIONAL WATER QUALITY CONTROL BOARD

DATE: November 21, 2005

SUBJECT: **COMMENTS ON THE ENVIRONMENTAL PROTECTION AGENCY'S (EPA's)
PROPOSED PUBLIC HEALTH AND ENVIRONMENTAL RADIATION
PROTECTION STANDARDS FOR YUCCA MOUNTAIN, NEVADA;
PROPOSED RULE**

Introduction

The California Regional Water Quality Control Board Lahontan Region (Board) staff received and reviewed the Proposed Public Health and Environmental Radiation Protection Standards for High-Level radioactive waste disposal facility at Yucca Mountain. The EPA is proposing to revise certain public health and safety standards for protection of health from radioactive materials stored or disposed of in the potential repository at Yucca Mountain.

The proposed standard incorporates "multiple compliance criteria applicable at different times for protection of individuals and in circumstances involving human intrusion into the repository." It also proposed to include several supporting provisions affecting the Department of Energy's (DOE's) performance projections.

Board staff had previously provided comments regarding groundwater quality issues on October 19, 2001 (see attachment), and these comments are still applicable to this project.

Following are Board staff comments on the proposed standard.

Board staff Comments

1. Section I.bb., Page 49020 - The proposed rule is for a compliance period for groundwater at 10,000 years. The rule did not require that DOE meet a specific radioactive dose limit after 10,000 years. The rule indicates that the 10,000-year period is within the period of geologic stability. The Yucca Mountain site is in an area of numerous faults, that have had activity as recently at June of 1992 (5.6 magnitude earthquake, 12 miles southeast of the project site). The rule does not explain how the 10,000-year time frame is "within the period of geologic stability." Board staff is concerned that the



rule terminates at the end of the 10,000-time period, and does not set any standard on the release of radiation beyond the time frame. The rule basically sets a time period to protect water quality, and after that time period the proposed rule does not provide beneficial use protection. What problems will arise by setting the standard for a 10,000 –year time frame, i.e., what will happen after 10,000 years?

2. Section I.c., Page 49021 - The proposed rule indicates that the primary means for demonstrating compliance with the standards is the use of computer modeling to project the performance of the disposal system under the range of expected conditions. The rule also states that the model involves extrapolations that involve inherent uncertainties. Board staff is concerned that using a model with “inherent certainties” could lead to erroneous results, thus not really identifying the “real” performance of the disposal system. Additionally, the “range of expected conditions” is not specified in the rule. Board staff would like to see an explanation of what the expected conditions were for the proposed model (i.e. does it include all potential geological conditions – earthquakes, volcanism, etc.).
3. Section II.A.1., Page 49023 - The proposed rule indicates that “Assumptions regarding the possible uses of ground water are quite speculative and have been avoided to the extent possible in the setting of the standards.” Board staff is concerned that the possible uses of groundwater have not been addressed in the proposed rule. In a Regional Board letter to the California Energy Commission (dated January 10, 2000 – see Attachment), Board staff indicated that groundwater appears to move through the saturated zone from Yucca Mountain to the accessible environment (i.e. surface springs near the Death Valley region - 20-30 km away) in less than the 10,000-year regulatory compliance period. The Regional Board considers that the possible uses of groundwater downgradient from the facility needs to be included in the assumptions for setting of the standards.
4. Section II.B., Page 49027 – The proposed rule states that “...the projections of the disposal system’s long-term performance cannot be confirmed. Not only is the projected performance of the disposal system not subject to confirmation, the natural conditions in and around the repository site will vary over time and these changes are also not subject to confirmation, making their use in performance assessments equally questionable over the long-term.” If the long-term performance of the disposal system cannot be confirmed, then how is the proposed project going to properly monitor the facility for potential discharges?

Conclusion

Thank you for the opportunity to comment. Board staff requests that our comments be incorporated into the proposed project.

If you have any questions regarding this matter, please telephone me at (760) 241-7366 or Hisam A. Baqai, Supervising Engineer at (760) 241-7325.

Attachments: October 19, 2001 Comments on Yucca Mountain
January 10, 2000 RWQCB Comments on Yucca Mountain

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